

**Listing of the Claims:**

The following is a complete listing of all the claims in the application, with an indication of the status of each:

- 1        1 (Currently Amended). An image editing apparatus which edits image
- 2        data which has been coded in accordance with an image coding method, by
- 3        ~~which~~ wherein a plurality of image frames constituting the image data are
- 4        divided into groups in order to manage the plurality of image frames by the
- 5        unit of each group, each image frame is coded into one of a first type
- 6        image frame which is created by coding based only on data enclosed in the
- 7        image frame itself, a second type image frame which is created by
- 8        performing inter-frame mono-directional prediction based on a past image
- 9        frame and coding a difference obtained by the prediction, and a third type
- 10       image frame which is created by performing inter-frame dual-directional
- 11       prediction based on a past image frame and a future image frame and
- 12       coding differences obtained by the prediction, and the plurality of image
- 13       frames are coded so that a head frame of each group may be the first type
- 14       image frame, said apparatus comprising:
- 15                an image coder which codes each of frames of image data into one
- 16                of the first type image frame, the second type image frame, and the third
- 17                type image frame by coding according to said image coding method;
- 18                an image decoder which decodes the image frame coded by said
- 19                image coder by decoding; and
- 20                an image data analyzer which analyzes a picture header of a head
- 21               frame in the area to be edited and determines an attribute of each group,
- 22               and types of image frames included in each group,
- 23               wherein: said image data analyzer determines whether or not a head
- 24               group which is arranged at a head of an editing target area included in the
- 25               image data coded by said image coding method is a closed group which is
- 26               a group that does not include the third type image frame which is to be

27 decoded by referring to an image frame included in a group which is  
28 arranged before the head group; and  
29 in a case where said image data analyzer determines that the head  
30 group is not the closed group, said image coder converts a portion near the  
31 head of the editing target area into the closed group.

1 2 (Original). The image editing apparatus according to claim 1, wherein  
2 said image data analyzer determines whether or not the third type image  
3 frame included in the head group is an image frame which is to be decoded  
4 by referring to an image frame included in a group which is arranged  
5 before the head group.

1 3 (Original). The image editing apparatus according to claim 2, wherein:  
2 in a case where said image data analyzer determines that the third  
3 type image frame is an image frame which is to be decoded by referring to  
4 an image frame included in the group arranged before the head group, the  
5 image decoder decodes the third type image frame; and  
6 said image coder codes the third type image frame which is  
7 determined by said image data analyzer as an image frame to be decoded  
8 by referring to an image frame included in the group arranged before the  
9 head group, and is decoded by said image decoder, into an image frame  
10 which is able to be decoded without referring to an image frame included  
11 in the group arranged before the head group.

1 4 (Original). The image editing apparatus according to claim 1, wherein:  
2 said image coding method is an MPEG method;  
3 each of the groups is a GOP of MPEG;  
4 the first type image frame is an I picture;  
5 the second type image frame is a P picture; and  
6 the third type image frame is a B picture.

1        5 (Currently Amended). An image editing apparatus which edits image  
2        data which has been coded in accordance with an MPEG method, said  
3        apparatus comprising:  
4                image data analyzing means for analyzing a picture header of a  
5        head frame in the area to be edited and a structure of image frames  
6        included in each GOP of the image data, and determining an attribute of  
7        each GOP and picture types of image frames included in each GOP;  
8                conversion point detecting means for detecting a GOP which needs  
9        to be re-coded from an editing target area of the image data, and an image  
10       frame which needs to be re-coded from the detected GOP;  
11               image decoding means for decoding the image frame which needs  
12       to be re-coded detected by said conversion point detecting means by  
13       decoding;  
14               GOP converting means for creating a new GOP by re-coding the  
15       image frame decoded by said image expanding means; and  
16               image data concatenating means for concatenating a plurality of  
17       image data which are cut out as editing target areas,  
18               wherein: said image data analyzing means determines whether or  
19       not a head GOP which is arranged at a head of the editing target area is a  
20       closed GOP; and  
21               in a case where said image data analyzing means determines that  
22       the head GOP of the editing target area is not a closed GOP, said GOP  
23       converting means converts a portion near the head of the editing target area  
24       into a closed GOP.

1        6 (Currently Amended). An image editing apparatus which edits image  
2        data which has been coded in accordance with by an image coding method,  
3        wherein ~~by which~~ a plurality of image frames constituting the image data  
4        are divided into groups in order to manage the image data by the unit of  
5        each group, each image frame is coded into one of a first type image frame

6        which is created by coding based only on data enclosed in the image frame  
7        itself, a second type image frame which is created by performing inter-  
8        frame mono-directional prediction based on a past image frame and coding  
9        a difference, and a third type image frame which is created by performing  
10       inter-frame dual-directional prediction based on a past image frame and a  
11       future image frame and coding differences, and the image data is coded so  
12       that a head frame of each group may be the first type image frame, said  
13       apparatus comprising:  
14                an image encoder which codes each of frames of image data into  
15       one of the first type image frame, the second type image frame, and the  
16       third type image frame in accordance withing to said image coding  
17       method;  
18                an image decoder which decodes the image frame coded by said  
19       image encoder; and  
20                an image data analyzer which analyzes a picture header of a head  
21       frame in the area to be edited and determines an attribute of each group,  
22       and types of image frames included in each group,  
23                wherein: in a case where said image data analyzer determines that a  
24       head image frame which is arranged at a head of an editing target area  
25       included in the image data coded by said image coding method is not the  
26       first type image frame, said image decoder decodes the head image frame,  
27       and each image frame appearing between the head image frame and the  
28       first type image frame which appears first after the head image frame; and  
29                said image encoder re-codes the image frames which are created by  
30       said image decoder decoding the head image frame and each image frame  
31       appearing between the head image frame and the first type image frame  
32       which appears first after the head image frame, and at that time, re-codes  
33       the head image frame into the first type image frame, and re-codes any of  
34       the third type image frame appearing after the head image frame into an  
35       image frame which is able to be decoded without referring to an image

36 frame arranged before the head image frame.

1 7 (Currently Amended). An image editing apparatus which edits image  
2 data which has been coded in accordance with by an image coding method,  
3 wherein a plurality of image frames constituting the image data are divided  
4 into groups in order to manage the image data by the unit of each group,  
5 each image frame is coded into one of a first type image frame which is  
6 created by coding based only on data enclosed in the image frame itself, a  
7 second type image frame which is created by performing inter-frame  
8 mono-directional prediction based on a past image frame and coding a  
9 difference, and a third type image frame which is created by performing  
10 inter-frame dual-directional prediction based on a past image frame and a  
11 future image frame and coding differences, and the image data is coded so  
12 that a head frame of each group may be the first type image frame, said  
13 apparatus comprising:

14 an image encoder which codes each of frames of image data into  
15 one of the first type image frame, the second type image frame, and the  
16 third type image frame in accordance withing to said image coding  
17 method;

18 an image decoder which decodes the image frame coded by said  
19 image encoder; and

20 an image data analyzer which determines an attribute of each  
21 group, and types of image frames included in each group,

22 wherein: in a case where said image data analyzer determines that a  
23 head image frame which is arranged at a head of an editing target area  
24 included in the image data coded by said image coding method is not the  
25 first type image frame, said image decoder decodes the head image frame,  
26 and each image frame appearing between the head image frame and the  
27 first type image frame which appears first after the head image frame; and  
28 said image encoder re-codes the image frames which are created by

29 said image decoder decoding the head image frame and each image frame  
30 appearing between the head image frame and the first type image frame  
31 which appears first after the head image frame, and at that time, re-codes  
32 the head image frame into the first type image frame, and re-codes any of  
33 the third type image frame appearing after the head image frame into an  
34 image frame which is able to be decoded without referring to an image  
35 frame arranged before the head image frame; and ~~The image editing~~  
36 ~~apparatus according to claim 6, wherein:~~

37           in a case where said image data analyzer determines that the head  
38 image frame of the editing target area is not the first type image frame,  
39           the image decoder decodes any of ~~the third type image frame~~  
40 frames that ~~appears~~ appear after ~~the~~ a first type image frame which appears  
41 first after the head image frame if any of the third type image ~~frame~~ frames  
42 is an image frame which is to be decoded by referring to an image frame  
43 which is arranged before the first type image frame; and

44           said image encoder re-codes the image frame which is created by  
45 said image decoder decoding any of the third type image frame that  
46 appears after the first type image frame which appears first after the head  
47 image frame.

1       8 (Original). The image editing apparatus according to claim 6,  
2           wherein when said image encoder re-codes the image frames which  
3 are created by said image decoder decoding each frame appearing between  
4 the head image frame and the first type image frame which appears first  
5 after the head image frame, said image encoder re-codes any of the third  
6 type image frame that appears after the head image frame into the third  
7 type image frame that is able to be decoded without referring to an image  
8 frame which is arranged before the head image frame.

1       9 (Original). The image editing apparatus according to claim 6, wherein:

2           in a case where said image data analyzer determines that the head  
3           image frame of the editing target area is the first type image frame, said  
4           image decoder decodes any of the third type image frame that appears after  
5           the head image frame; and  
6           said image encoder re-codes the image frame which is created by  
7           said image decoder decoding any of the third type image frame that  
8           appears after the head image frame into an image frame which is able to be  
9           decoded without referring to an image frame which is arranged before the  
10          head image frame.

1          10 (Original). The image editing apparatus according to claim 6, wherein:  
2           in a case where said image data analyzer determines that the head  
3           image frame of the editing target area is the first type image frame, said  
4           image decoder decodes any of the third type image frame that appears after  
5           the head image frame; and  
6           said image encoder re-codes the image frame which is created by  
7           said image decoder decoding any of the third type image frame that  
8           appears after the head image frame into the first type image frame.

1          11 (Original). The image editing apparatus according to claim 6, wherein:  
2           in a case where said image data analyzer determines that the head  
3           image frame of the editing target area is the first type image frame, said  
4           image decoder decodes any of the third type image frame that appears after  
5           the head image frame; and  
6           said image encoder re-codes the image frame which is created by  
7           said image decoder decoding any of the third type image frame that  
8           appears after the head image frame into the third type image frame which  
9           is able to be decoded without referring to an image frame which is  
10          arranged before the head image frame.

1       12 (Original). The image editing apparatus according to claim 6, wherein  
2               said image coding method is an MPEG method;  
3               each of the groups is a GOP of MPEG;  
4               the first type image frame is an I picture;  
5               the second type image frame is a P picture; and  
6               the third type image frame is a B picture.

1       13 (Currently Amended).     An image editing apparatus which edits  
2       image data which has been coded in accordance with by an image coding  
3       method, wherein a plurality of image frames constituting the image data  
4       are divided into groups in order to manage the image data by the unit of  
5       each group, each image frame is coded into one of a first type image frame  
6       which is created by coding based only on data enclosed in the image frame  
7       itself, a second type image frame which is created by performing inter-  
8       frame mono-directional prediction based on a past image frame and coding  
9       a difference, and a third type image frame which is created by performing  
10      inter-frame dual-directional prediction based on a past image frame and a  
11      future image frame and coding differences, and the image data is coded so  
12      that a head frame of each group may be the first type image frame, said  
13      apparatus comprising:

14             an image encoder which codes each of frames of image data into  
15             one of the first type image frame, the second type image frame, and the  
16             third type image frame in accordance with said image coding method;

17             an image decoder which decodes the image frame coded by said  
18             image encoder; and

19             an image data analyzer which analyzes a picture header of a head  
20             frame in the area to be edited and determines an attribute of each group,  
21             and types of image frames included in each group,

22             wherein: said image data analyzer determines whether a first  
23             condition that the first type image frame which appears first in an editing



24 target area included in the image data coded in accordance with said image  
25 coding method is a head image frame which is arranged at a head of a  
26 group, and a second condition that the group is a closed group which is a  
27 group that does not include the third type image frame which is to be  
28 decoded by referring to an image frame included in a group which is  
29 arranged before the group are satisfied or not;  
30 in accordance with a result of said image data analyzer's  
31 determining the first condition and the second condition, said image  
32 decoder decodes any of the third type image frame that appears after the  
33 first type image frame appearing first in the editing target area and that  
34 needs to be re-coded; and  
35 said image encoder re-codes the image frame which is created by  
36 said image decoder decoding any of the third type image frame that  
37 appears after the first type image frame which appears first in the editing  
38 target area.

1 14 (Original). The image editing apparatus according to claim 13,  
2 wherein:  
3 in a case where said image data analyzer determines that one of the  
4 first condition and the second condition is not satisfied, said image decoder  
5 decodes any of the third type image frame that appears after the first type  
6 image frame which appears first in the editing target area; and  
7 said image encoder re-codes the image data which is created by  
8 said image decoder decoding any of the third type image frame that  
9 appears after the first type image frame which appears first in the editing  
10 target area.

1 15 (Original). The image editing apparatus according to claim 13,  
2 wherein:  
3 in a case where said image data analyzer determines that the first

4 condition is satisfied and the second condition is not satisfied, said image  
5 encoder re-codes the image frame which is created by said image decoder  
6 decoding any of the third type image frame that appears after the first type  
7 image frame which appears first in the editing target area into the first type  
8 image frame .

1 16 (Original). The image editing apparatus according to claim 13,  
2 wherein in a case where said image data analyzer determines that  
3 the first condition is satisfied and the second condition is not satisfied, said  
4 image encoder re-codes the image frame which is created by said image  
5 decoder decoding any of the third type image frame that appears after the  
6 first type image frame which appears first in the editing target area into the  
7 third type image frame which is able to be decoded without referring to an  
8 image frame which is arranged before the head image frame.

1 17 (Original). The image editing apparatus according to claim 13,  
2 wherein in a case where said image data analyzer determines that  
3 the first condition and the second condition are satisfied, said image  
4 editing apparatus copies the image frame which is created by said image  
5 decoder decoding any of the third type image frame that appears after the  
6 first type image frame which appears first in the editing target area to the  
7 image data after being edited.

1 18 (Original). The image editing apparatus according to claim 13, wherein  
2 said image coding method is an MPEG method;  
3 each of the groups is a GOP of MPEG;  
4 the first type image frame is an I picture;  
5 the second type image frame is a P picture; and  
6 the third type image frame is a B picture.

1 19 (Original). An image editing method for editing image data which has  
2 been coded in accordance with an image coding method, wherein which a  
3 plurality of image frames constituting the image data are divided into  
4 groups in order to manage the plurality of image frames by the unit of each  
5 group, each image frame is coded into one of a first type image frame  
6 which is created by coding based only on data enclosed in the image frame  
7 itself, a second type image frame which is created by performing inter-  
8 frame mono-directional prediction based on a past image frame and coding  
9 a difference, and a third type image frame which is created by performing  
10 inter-frame dual-directional prediction based on a past image frame and a  
11 future image frame and coding differences, and the plurality of image  
12 frames are coded so that a head frame of each group may be the first type  
13 image frame, said image editing method comprising:  
14       setting an editing target area in the image data which has been  
15 coded in accordance with said image coding method;  
16       determining whether a head group which is arranged at a head of  
17 the editing target area is a closed group which is a group that does not  
18 include the third type image frame which is to be decoded by referring to  
19 an image frame included in a group which is arranged before the head  
20 group; and  
21       converting a portion near the head of the editing target area into the  
22 closed group in a case where said determining determines that the head  
23 group is not the closed group.

1 20 (Original). The image editing method according to claim 19, further  
2 comprising:  
3       determining whether any of the third type image frame included in  
4 the head group of the editing target area is an image frame which is to be  
5 decoded by referring to an image frame included in a group which is  
6 arranged before the head group;

7            decoding any of the third type image frame determined as an image  
8            frame which is to be decoded by referring to an image frame included in a  
9            group which is arranged before the head group; and  
10           coding any of the decoded third type image frame into an image  
11           frame which is able to be decoded without referring to an image frame  
12           included in a group which is arranged before the head group.

1           21 (Original). The image editing method according to claim 19, wherein  
2           said image coding method is an MPEG method;  
3           each of the groups is a GOP of MPEG;  
4           the first type image frame is an I picture;  
5           the second type image frame is a P picture; and  
6           the third type image frame is a B picture.

1           22 (Original). An image editing method for editing image data which has  
2           been coded in accordance with an MPEG method, said image editing  
3           method comprising:  
4                  setting one or more editing target areas in the coded image data;  
5                  determining whether a head GOP which is arranged at a head of  
6           each of the one or more editing target areas is a closed GOP;  
7                  determining a picture type of a head image frame which is arranged  
8           at the head of each editing target area;  
9                  detecting a GOP which needs to be re-coded, and an image frame  
10           which is included in the GOP and needs to be re-coded in accordance with  
11           a result of said determining whether a head GOP of each editing target area  
12           is a closed GOP, and a result of said determining a picture type of a head  
13           image frame of each editing target area; and  
14                  re-coding the detected image frame which needs to be re-coded,  
15           after it is decoded.

1       23 (Original). The image editing method according to claim 22, further  
2       comprising:  
3             determining a picture type of a next image frame which is arranged  
4       next to the head image frame of each editing target area, in a case where  
5       said determining whether a head GOP is a closed GOP determines that the  
6       head GOP of each editing target area is not a closed GOP;  
7             decoding the next image frame and following image frames which  
8       are B pictures, in a case where said determining a picture type of a next  
9       image frame determines that the next image frame is a B picture, and  
10       following image frames which are B pictures, after decoding an image  
11       frame which is an I picture which is encountered first when going back in a  
12       reverse direction from the head image frame, each image frame between  
13       the encountered image frame and the head image frame, and the head  
14       image frame;  
15             re-coding each decoded image frame, and re-coding the image  
16       frames which are created by decoding the following image frames which  
17       are B pictures into image frames which are able to be decoded without  
18       referring to an image frame which is arranged before the head image  
19       frame; and  
20             recording each of the image frames which are created by re-coding  
21       the head image frame and the following image frames which are B pictures  
22       after those image frame are decoded.

1       24 (Original). The image editing method according to claim 22, further  
2       comprising:  
3             decoding the head image frame of each editing target area in a case  
4       where said determining a picture type of a head image frame determines  
5       that the head image frame is a P picture, and also decoding each image  
6       frame appearing after the head image frame and before an image frame  
7       which is an I picture which appears first after the head image frame; and

8 re-coding the image frames which are created by decoding the head  
9 image frame and each image frame appearing after the head image frame,  
10 and re-coding the image frame which is created by decoding the head  
11 image frame into an image frame which is an I picture.

1 25 (Original). The image editing method according to claim 22, further  
2 comprising:

3 expanding the image frame which needs to be re-coded by  
4 decoding:

5 creating a new GOP by re-coding the image frame which is  
6 decoded by said expanding; and

7 concatenating the one or more editing target areas.

1 26 (Original). An image editing method for editing image data which has  
2 been coded in accordance with an image coding method, wherein a  
3 plurality of image frames constituting the image data are divided into  
4 groups in order to manage the image data by the unit of each group, each  
5 image frame is coded into one of a first type image frame which is created  
6 by coding based only on data enclosed in the image frame itself, a second  
7 type image frame which is created by performing inter-frame mono-  
8 directional prediction based on a past image frame and coding a difference,  
9 and a third type image frame which is created by performing inter-frame  
10 dual-directional prediction based on a past image frame and a future image  
11 frame and coding differences, and the image data is coded so that a head  
12 frame of each group may be the first type image frame, said image editing  
13 method comprising:

14 setting an editing target area in the image data which has been  
15 coded in accordance with said image coding method;

16 determining a type of a head image frame which is arranged at a  
17 head of the editing target area;

18 decoding the head image frame of the editing target area and each

19 image frame appearing between the head image frame and the first type  
20 image frame which appears first after the head image frame, in a case  
21 where said determining a type determines that the head image frame is not  
22 the first type image frame; and  
23 re-coding the image frames created by decoding the head image  
24 frame and each image frame appearing between the head image frame and  
25 the first type image frame which appears first after the head image frame,  
26 and re-coding the head image frame into the first type image frame, and re-  
27 coding any of the third type image frame that appears after the head image  
28 frame into an image frame which is able to be decoded without referring to  
29 an image frame which is arranged before the head image frame.

1 27 (Currently Amended). An image editing method for editing image data  
2 which has been coded in accordance with an image coding method,  
3 wherein a plurality of image frames constituting the image data are divided  
4 into groups in order to manage the image data by the unit of each group,  
5 each image frame is coded into one of a first type image frame which is  
6 created by coding based only on data enclosed in the image frame itself, a  
7 second type image frame which is created by performing inter-frame  
8 mono-directional prediction based on a past image frame and coding a  
9 difference, and a third type image frame which is created by performing  
10 inter-frame dual-directional prediction based on a past image frame and a  
11 future image frame and coding differences, and the image data is coded so  
12 that a head frame of each group may be the first type image frame, said  
13 image editing method comprising:  
14 setting an editing target area in the image data which has been  
15 coded in accordance with said image coding method;  
16 determining a type of a head image frame which is arranged at a  
17 head of the editing target area;  
18 decoding the head image frame of the editing target area and each

19 image frame appearing between the head image frame and the first type  
20 image frame which appears first after the head image frame, in a case  
21 where said determining a type determines that the head image frame is not  
22 the first type image frame;

23 re-coding the image frames created by decoding the head image  
24 frame and each image frame appearing between the head image frame and  
25 the first type image frame which appears first after the head image frame,  
26 and re-coding the head image frame into the first type image frame, and re-  
27 coding any of the third type image frame that appears after the head image  
28 frame into an image frame which is able to be decoded without referring to  
29 an image frame which is arranged before the head image frame;

30 ~~The image editing method according to claim 26, further~~  
31 ~~comprising:~~

32 decoding any of the third type image ~~frame~~ frames that ~~appears~~  
33 appear after the first type image frame which appears first after the head  
34 image frame if provided that any of the third type image ~~frame~~ frames is  
35 an image frame which is to be decoded by referring to an image frame  
36 which is arranged before the first type image frame, in a case where said  
37 determining a type determines that the head image frame of the editing  
38 target area is not the first type image frame; and

39 re-coding the image frame which is created by decoding any of the  
40 third type image frame that appears after the first type image frame which  
41 appears first after the head image frame.

1 28 (Original). The image editing method according to claim 26, further  
2 comprising

3 re-coding the image frames created by decoding the head image  
4 frame and each image frame appearing between the head image frame and  
5 the first type image frame which appears first after the head image frame,  
6 and re-coding any of the third type image frame that appears after the head



7 image frame into the third type image frame which is able to be decoded  
8 without referring to an image frame which is arranged before the head  
9 image frame.

1 29 (Original). The image editing method according to claim 26, further  
2 comprising:

3 decoding any of the third type image frame that appears after the  
4 head image frame of the editing target area in a case where said  
5 determining a type determines that the head image frame is the first type  
6 image frame; and

7 re-coding the image frame which is created by decoding any of the  
8 third type image frame that appears after the head image frame into an  
9 image frame which is able to be decoded without referring to an image  
10 frame which is arranged before the head image frame.

1 30 (Original). The image editing method according to claim 26, further  
2 comprising:

3 decoding any of the third type image frame that appears after the  
4 head image frame of the editing target area in a case where said  
5 determining a type determines that the head image frame is the first type  
6 image frame; and

7 re-coding the image frame which is created by decoding any of the  
8 third type image frame that appears after the head image frame into the  
9 first type image frame.

1 31 (Original). The image editing method according to claim 26, further  
2 comprising:

3 decoding any of the third type image frame that appears after the  
4 head image frame of the editing target area in a case where said  
5 determining a type determines that the head image frame is the first type

6 image frame; and  
7 re-coding the image frame which is created by decoding any of the  
8 third type image frame that appears after the head image frame into the  
9 third type image frame which is able to be decoded without referring to an  
10 image frame which is arranged before the head image frame.

1 32 (Original). The image editing method according to claim 26, wherein:  
2 said image coding method is an MPEG method;  
3 each of the groups is a GOP of MPEG;  
4 the first type image frame is an I picture;  
5 the second type image frame is a P picture; and  
6 the third type image frame is a B picture.

1 33 (Original). An image editing method for editing image data which has  
2 been coded in accordance with an image coding method, wherein which a  
3 plurality of image frames constituting the image data are divided into  
4 groups in order to manage the image data by the unit of each group, each  
5 image frame is coded into one of a first type image frame which is created  
6 by coding based only on data enclosed in the image frame itself, a second  
7 type image frame which is created by performing inter-frame mono-  
8 directional prediction based on a past image frame and coding a difference,  
9 and a third type image frame which is created by performing inter-frame  
10 dual-directional prediction based on a past image frame and a future image  
11 frame and coding differences, and the image data is coded so that a head  
12 frame of each group may be the first type image frame, said image editing  
13 method comprising:  
14 setting an editing target area in the image data which has been  
15 coded in accordance with said image coding method;  
16 determining whether a first condition that the first type image  
17 frame which appears first in the editing target area is a head image frame

18        which is arranged at a head of a group and a second condition that the  
19        group is a closed group which is a group that does not include the third  
20        type image frame which is to be decoded by referring to an image frame  
21        included in a group which is arranged before the group are satisfied or not;  
22                decoding any of the third type image frame that appears after the  
23        first type image frame which appears first in the editing target area and that  
24        needs to be re-coded, in accordance with a result of determining the first  
25        condition and the second condition; and  
26                re-coding the image frame which is created by decoding any of the  
27        third type image frame that appears after the first type image frame which  
28        appears first in the editing target area.

1        34 (Original). The image editing method according to claim 33, further  
2        comprising:  
3                decoding any of the third type image frame that appears after the  
4        first type image frame which appears first in the editing target area, in a  
5        case where said determining determines that one of the first condition and  
6        the second condition is not satisfied; and  
7                re-coding the image frame which is created by decoding any of the  
8        third type image frame that appears after the first type image frame which  
9        appears first in the editing target area.

1        35 (Original). The image editing method according to claim 33, further  
2        comprising  
3                re-coding the image frame which is created by decoding any of the  
4        third type image frame that appears after the first type image fame which  
5        appears first in the editing target area into the first type image frame, in a  
6        case where said determining determines that the first condition is satisfied,  
7        and the second condition is not satisfied.

1       36 (Original). The image editing method according to claim 33, further  
2       comprising  
3               re-coding the image frame which is created by decoding any of the  
4       third type image frame that appears after the first type image frame which  
5       appears first in the editing target area into the third type image frame  
6       which is able to be decoded without referring to an image frame which is  
7       arranged before the head image frame, in a case where said determining  
8       determines that the first condition is satisfied, and the second condition is  
9       not satisfied.

1       37 (Original). The image editing method according to claim 33, further  
2       comprising  
3               copying the image frame which is created by decoding any of the  
4       third type image frame that appears after the first type image frame which  
5       appears first in the editing target area to the image data after being edited,  
6       in a case where said determining determines that the first condition and the  
7       second condition are satisfied.

1       38 (Currently amended).  
2       An image editing method for editing image data which has been coded in  
3       accordance with an image coding method, wherein which a plurality of  
4       image frames constituting the image data are divided into groups in order  
5       to manage the image data by the unit of each group, each image frame is  
6       coded into one of a first type image frame which is created by coding  
7       based only on data enclosed in the image frame itself, a second type image  
8       frame which is created by performing inter-frame mono-directional  
9       prediction based on a past image frame and coding a difference, and a third  
10       type image frame which is created by performing inter-frame dual-  
11       directional prediction based on a past image frame and a future image  
12       frame and coding differences, and the image data is coded so that a head

13     frame of each group may be the first type image frame, said image editing  
14     method comprising:  
15             setting an editing target area in the image data which has been  
16     coded in accordance with said image coding method;  
17             determining whether a first condition that the first type image  
18     frame which appears first in the editing target area is a head image frame  
19     which is arranged at a head of a group and a second condition that the  
20     group is a closed group which is a group that does not include the third  
21     type image frame which is to be decoded by referring to an image frame  
22     included in a group which is arranged before the group are satisfied or not;  
23             decoding any of the third type image frame that appears after the  
24     first type image frame which appears first in the editing target area and that  
25     needs to be re-coded, in accordance with a result of determining the first  
26     condition and the second condition;  
27             re-coding the image frame which is created by decoding any of the  
28     third type image frame that appears after the first type image frame which  
29     appears first in the editing target area; and  
30     ~~—— The image editing method according to claim 33, further~~  
31     comprising  
32             inserting a first or second type image frame which appears  
33     immediately before a head image frame which is arranged at the head of  
34     the editing target area into the head of the editing target area, in a case  
35     where the head image frame is the third type image frame.

1     39 (Original). The image editing method according to claim 33, wherein:  
2             said image coding method is an MPEG method;  
3             each of the groups is a GOP of MPEG;  
4             the first type image frame is an I picture;  
5             the second type image frame is a P picture; and  
6             the third type image frame is a B picture.

1       40 (New). An image editing apparatus which edits image data which has  
2       been coded in accordance with an image coding method, wherein a  
3       plurality of image frames constituting the image data are divided into  
4       groups, each image frame is coded into one of a first type image frame  
5       which is created by coding data in the image frame, a second type image  
6       frame which is created by performing inter-frame mono-directional  
7       prediction based on a past image frame and coding a difference obtained  
8       by the prediction, and a third type image frame which is created by  
9       performing inter-frame dual directional prediction based on a past image  
10      frame and a future image frame and coding differences obtained by the  
11      prediction, and the plurality of image frames are coded so that a head  
12      frame of each group may be the first type image frame, said apparatus  
13      comprising:  
14              an image coder which codes each of frames of image data into one  
15      of the first type image frame, the second type image frame, and the third  
16      type image frame;  
17              an image decoder which decodes the image frame coded by the  
18      image coder; and  
19              an image data analyzer which detects a head group which is  
20      arranged at a head of an editing target area included in the image data and  
21      determines types of image frames included in each group,  
22              wherein: said image data analyzer determines whether or not the  
23      head group which is arranged at a head of the editing target area included  
24      in the image data is a closed group which does not include the third type  
25      image frame which is to be decoded by referring to an image frame  
26      included in a group which is arranged before the head group; and  
27              in a case where said image data analyzer determined the head group  
28      is not the closed group which does not include the third type image frame,  
29      said image coder converts a portion near the head of the editing target area

30 into the closed group.

1 41 (New). An image editing apparatus which edits image data which  
2 has been coded in accordance with an MPEG method, said apparatus  
3 comprising:  
4 image data analyzing means for analyzing a structure of image  
5 frames included in each GOP of the image data, and determining an  
6 attribute of each GOP and picture types of image frames included in each  
7 GOP;  
8 conversion point detecting means for detecting a GOP which needs  
9 to be re-coded from an editing target area of the image data, and an image  
10 frame which needs to be re-coded from the detected GOP;  
11 image decoding means for decoding the image frame which needs  
12 to be re-coded detected by said conversion point detecting means;  
13 GOP converting means for creating a new GOP by re-coding the  
14 image frame decoded by said image expanding means; and  
15 image data concatenating means for concatenating a plurality of  
16 image data which are cut out as editing target areas,  
17 wherein: said image data analyzing means detects a head GOP  
18 which is arranged at a head of the editing target area and determines  
19 whether or not the head GOP which is arranged at the head of the editing  
20 target area is a closed GOP; and  
21 in a case where said image data analyzing means determines that  
22 the head GOP of the editing target area is not a closed GOP, said GOP  
23 converting means converts a portion near the head of the editing target area  
24 into a closed GOP including no B picture.